Zero Retries issue 0196 2025-04-04

Zero Retries is an independent newsletter promoting technological innovation that is occurring in Amateur Radio, and Amateur Radio as (literally) a license to experiment with and learn about radio technology. Radios are computers - with antennas! Now in its fourth year of publication, with 2600+ subscribers.

About Zero Retries

Steve Stroh N8GNJ, Editor

Web version of this issue - https://www.zeroretries.org/p/zero-retries-0196

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Request To Send

Commentary by Editor Steve Stroh N8GNJ

Another Long Zero Retries Week

This… has been a *long week* here at Zero Retries Galactic Headquarters and N8GNJ Labs. The writing portion of my brain is a bit fried and my butt is a lot numb. In addition to getting involved as local volunteers for GNU Radio Conference 2025 in September in nearby Everett, Washington, Tina KD7WSF and I are pleased (and relieved!) to announce the first Zero Retries Digital Conference that will follow on the Saturday after GRCon 2025 - see the story that immediately follows.

Both of those conferences are time sinks behind the scenes to handle all the administrivia, including lining up keynote speakers, etc. I have learned the very hard way now (it took *decades* of life experience) that despite "ample" (months!) lead time for an event, it's far, far less time consuming to line things up very far in advance instead of deferring such work until closer to the event.

Fortunately for me, Tina KD7WSF is an organizational wizard and can effortlessly (well, that's the way it seems to me) juggle all manner of activity coordination. Tina was the brains and organizational skills behind the two best attended Digital Communications Conferences (DCCs) in the entire series - both of which were held in the Seattle area, as well as managing a number of other DCCs. Tina is now applying that considerable experience and talent into making GRCon 2025 and ZRDC 2025 stellar events.

In addition to conference work, I've been diving deep into the "maze of twisty passages" that is FCC Part 97 - the US Amateur Radio regulations, to be able to submit a detailed, and complete response to FCC Docket 25-133. I (laughably, now) hoped to convene a Zero Retries videoconference for group discussion, but that was not to be. Early next week I will publish a special issue of Zero Retries with my comments.

As it is, I'm about 75% through Part 97, with my corresponding comments, so I'm comfortable that I'll be able to offer my perspective in ample time to you Zero Retries readers as an example, and meet the FCC's deadline.

Countdown to 25-133 comment cutoff - April 11, 2025- 7 days.

And… if Docket 25-133 wasn't urgent enough, there was also an even more time sensitive project in the background that I was committed to helping with. That one's now done, just in time to barely push out this issue of Zero Retries near the appointed time. I hope I can reveal *that* project in due course.

Thus I will be devoting *this weekend* to *not* spending time in my office chair staring at the big screen typing away at a my primary keyboard. This weekend's activities may involve screens and keyboards… just not the same ones that I've been working on all week to date.

# # #

zBitx Can Be Ordered!

Orders are now being accepted for the HF Signals zBitx Software Defined (*really - meets **my** definition of SD*) HF transceiver. Again, this is the first, and only (that I'm aware of) HF radio that includes the FreeDV digital voice mode for HF.

To order, don't go to the HF Signals Order page… inexplicably, the zBitx isn't listed there. Instead go to the zBitx page (the link above) and scroll down to the bottom of the page for the "Add to Cart" link.

My zBitx is now on order!

My zBitx will be a lot of fun and a (re)learning curve about HF, including figuring out portable multiband HF antennas. There are all manner of accessories to find, and give it a good try before ARRL (Summer) Field Day, which, now that I have a digital modes first HF radio… I may participate again from some nice comfortable spot, with a solar panel and my battery bank. I'm going to have to source some quality 18650 Lithium Ion batteries, and a charger. Or maybe it's just simpler to run the zBitx off ~~12 volts~~.

Post publication update *- a reader cautioned me that the zBitx's external power input is 9 volts, not 12 volts. I appreciate attention to detail like that by Zero Retries readers.*

There are apparently some issues with the zBitx, which John Harper AE5X has been documenting and reporting on - 1, 2. That doesn't dampen my enthusiasm for it as HF Signals has a reputation for after-sales support and upgrades, and this is, after all, a *Software Defined* Radio. So, new software is inevitably forthcoming.

# # #

Have a great weekend, all of you co-conspirators in Zero Retries Interesting Amateur Radio activities!

And, take time to enjoy family, loved ones, *and* Amateur Radio. And good weather.

Steve N8GNJ

Leave a comment

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Announcing Zero Retries Digital Conference 2025

By Tina Stroh KD7WSF and Steve Stroh N8GNJ

Released April 4, 2025

We are pleased to announce that the first Zero Retries Digital Conference will be held in Everett, Washington, USA on **Saturday, September 13, 2025**. The Zero Retries Digital Conference (ZRDC) is being hosted by the Zero Retries newsletter - https://www.zeroretries.org.

ZRDC 2025 will be held in the same venue as the GNU Radio Conference 2025 - the Edward D. Hansen Conference Center in downtown Everett. (GRCon 2025 will be held the week immediately prior to ZRDC 2025 - Monday September 8th through Friday, September 12th, 2025.)

While GRCon 2025 will have some coverage of Amateur Radio, including VE testing, the Zero Retries Digital Conference will be 100% Amateur Radio content.

The presentations at ZRDC 2025 will be "leading edge" topics such as are typically discussed in Zero Retries. We hope to have some very exciting presentations, demonstrations, and new technology discussed and revealed at ZRDC 2025. Topics include (but not limited to):

- IP400 Networking Project - (including production hardware and demonstrations of mesh networking)
- M17 Digital Voice / Data system (including [I hope] demonstrations with an M17 repeater)
- MMDVM-TNC data system (including demonstration of MMDVM-TNC via repeater [also, I hope]).

Zero Retries Digital Conference 2025 builds on the rich history of significant Amateur Radio technology conferences in the Seattle, Washington metropolitan area including Comm Academy, MicroHAMS Digital Conference, Valley Camp Summer Gathering, and the 1996 and 2013 TAPR Digital Communications Conferences (both of which are the first and second best attended DCCs).

The manager of the Zero Retries Digital Conference is Tina Stroh KD7WSF.

Calls for, and direct invitations for ZRDC 2025 Presentations will go out soon with a signup sheet. Sponsorship queries should be directed to Tina.

The first confirmed speaker for ZRDC 2025 (besides me on the IP400 Network Project) is Bryan Hoyer

K7UDR reprising (at my request) his presentation first given at the 2012 TAPR Digital Communications Conference called "A Hailing Channel for Packet Radio". It's now 13 years later, and a "Hailing Channel" has new relevance as a key element of the IP400 Networking Project. I discussed my admiration for K7UDR's concept and presentation in a sub-article in **Zero Retries 0142** - Hailing Channel(s). I look forward to K7UDR's current perspective on the concept.

Ticket sales for ZRDC will be available at a later date. The venue of ZRDC will accommodate a large number of attendees so ticket sales will not be capped.

The latest information on ZRDC 2025 will be maintained at https://www.zeroretries.org/p/conference, or just click the **Conference** link on the top bar of the Zero Retries web page.

…

Tina and I are gratified that the Zero Retries Digital Conference 2025 is now a **ARRL Operating Specialty Convention** and is now included on ARRL's **Hamfest and Convention** page: https://www.arrl.org/hamfests/zero-retries-digital-conference-2025. ZRDC 2025 will also be mentioned in upcoming issues of ARRL's magazines QST and QEX. Our thanks to ARRL Northwestern Division Director Mark Tharp KB7HDX, and the ongoing support of Zero Retries by ARRL Northwestern Division (and longtime friend) Michael Sterba KG7HQ.

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Frank Brickle AB2KT is a Silent Keyboard

The term Silent Keyboard is used in Zero Retries to honor the passing of Amateur Radio Operators whose contributions trend towards "technical / digital".

Michelle Thompson W5NYV on the Ground-station email list:

> **Frank Brickle, ORI Director and Polymath, SK**
>
> I have some difficult news to share.
>
> Frank Brickle AB2KT has passed away after a valiant battle with pancreatic cancer.
>
> He was surrounded and supported by friends and loved ones, and continued to work and create and contribute until the end. He chose to leave us on his own terms.
>
> I have known Frank for quite a while. I counted him as a best friend. He very generously agreed to be a Director of ORI in August of 2023. His advice on technical, regulatory, and organizational matters was excellent, tactful, clear, and deeply appreciated. All of us have benefited from his patient counsel.
>
> Many of you know him from amateur radio, where his contributions ranged from designing DttSP (leveraged by HPSDR among many other projects) to Digital Spark Gap (as yet unpublished), a way of exciting all the HF bands in order to efficiently transmit data in an innovative way. And, plenty in between! Frank explained polynomial spline modulation, synthetic aperture radar techniques, double-checked everything on the dumbbell antenna design, and made numerous suggestions for areas of investigation. He is responsible for our DUM2024 workshop being a success, which meant turning lemons into lemonade. That was just his style.
>
> Frank was also an internationally renowned composer and music mentor. Frank is largely responsible for the technical success of the Organ Donor project, an artificially intelligent pipe

> organ project that was successfully exhibited in the US at Maker Faire, Burning Man, and other venues. Without his collaboration, Organ Donor would not have existed, and I would not have been able to serve as a distinguished lecturer for IEEE in algorithmic music composition, using entropy along with Bayesian statistics to chart out a definition of beauty as determined by tesselating Galois fields of octave representations.
>
> We often hear "Together everyone achieves more". Frank lived this. If he had a fault it was wanting to help everyone, all the time, at the expense of a more selfish focus.
>
> The only thing he would want to leave behind is inspiration and encouragement.

Beyond the loss of AB2KT to Amateur Radio and Open Research Institute and its participants, I'm profoundly sad to learn that I could have met and known AB2KT as he was not only involved in Zero Retries Interesting subjects, but his QRZ page lists him as living right here in Bellingham, Washington… I had no idea.

I have no idea where I'd heard of the concept of Digital Spark Gap project, but mention of that seemed to stir a few of my neurons. I'm going to make some time this weekend to listen to QSO Today Podcast Episode 212 from 2018-08-24 with AB2KT being interviewed by Eric Guth 4Z1UG. I'm really glad AB2KT was able to be "on the record" about his Amateur Radio experience with 4Z1UG.

My thanks to Jeff Davis KE9V for alerting me to the passing of AB2KT.

Leave a comment

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ZR > BEACON

By Steve Stroh N8GNJ

Short mentions of Zero Retries Interesting items.

National Amateur Radio Alliance

Image courtesy of National Amateur Radio Alliance

> The National Amateur Radio Alliance (NARA) is a forward-thinking organization dedicated to supporting, empowering, and expanding the amateur radio community. We actively develop initiatives that foster engagement, promote education, and advance the hobby. With several initiatives already underway, we are deeply committed to the growth and sustainability of amateur radio. As we continue to evolve, we look forward to launching new initiatives that enhance the experience, inspire greater involvement, and ensure the hobby remains vibrant, inclusive, and accessible for future generations.

I wasn't previously aware of NARA until there was an interesting "Streisand Effect" action on the part of ARRL.

It's good to see a new US national Amateur Radio organization arise.

I had to chuckle about this mention on NARA's home page:

> … and even sending emails over HF…

Which we've been doing for four decades or so now. 😊

NARA seems to be encouraging feedback. If you have thoughts on NARA, drop them an email - cq@usnara.org.

My thanks to Zero Retries Founding Member 0000 Steven Davidson K3FZT for bringing this to my attention.

# # #

HamSCI Meteor Scatter QSO Party 2025

Press release from HamSCI:

> **Call for Operators and Monitors**
>
> HamSCI – The Ham Radio Science Citizen Investigation is preparing for a series of meteor scatter (MS) experiments later this year. The target storms are in August (Perseids) and December (Geminids). Preparation and testing are underway now. This is a combination 'special event' and a contest to generate contact data during meteor scatter events using 10 meters and 6 meters. Contest rules will be released shortly.
>
> Ten meters has not been used much for meteor scatter study due to past symbol rate limits. But with recent changes in FCC rules, WSJT-X/MSK144 can now be used on HF bands. The HamSCI meteor scatter event will collect contact data from both 10 meters and 6 meters as part of the scheduled events in August and December. Data will be analyzed offline, comparing data from both bands, using both PSK Reporter raw data and operator contact logs from WSJT-X. User data including both logged contact and received reports are necessary for valid experimental analysis. The latter can be provided by any receive system reporting on MSK144 through PSK Reporter.
>
> Currently, we need operators to be active (i.e., CQ-ing) on MSK144; or passive, if possible, reporting via PSK Reporter as 'monitors'. The best times are early morning hours prior to 10M opening to F2 propagation. Meteor scatter propagation occurs well below F2 and is supported in or near the E layer where the meteor ionization tracks occur. Saturday mornings are being used regularly to announce and coordinate 10M contacts using Ping Jockey Central. Announcements are also made on the Front Range Six Meter groups.io due to the substantial number of meteor scatter operators in that group.

To be successful, this effort needs operators, both active and passive. The upcoming April-Lyrids shower is an excellent time to set up your equipment and join with other operators preparing for the events later this year. If you do not have the time to be active, at least set up passive reporting. PSK Reporter currently has scarce 10M MSK144 monitors; so we need to increase those numbers during the early morning hours.

The best Lyrid times are around midnight and early morning hours, peaking April 21-22, but also for several days before and after the peak dates. We expect large numbers of 10M and 6M MSK144 operators to be both active and passive during the Lyrid events.

Specific information for the August and December special events will be published as it becomes available, and as the planning matures. You can find the description of the HamSCI Meteor Shower QSO Party - 2025 here:

hamsci.org/msqp-poster

Please join us in becoming both active and/or passive operator/participants in event planning during April. Eventually, the HamSci team will be collecting operator contact information, but for now, all that is required is for participants to report through PSK Reporter. For more information on the operating guidelines for the activity, please go

here:

HamSCI serves as a means for fostering collaboration between professional researchers and amateur radio operators. It assists in developing and maintaining standards and agreements between all people and organizations involved. Its goals are to advance scientific research and understanding through amateur radio activities, encourage the development of modern technologies to support this research and provide educational opportunities for the amateur community and the public.

For more information about HamSCI and to join our mailing list, please visit our website www.hamsci.org.

This is one of the rare operating events that are primarily science / technical in nature, thus Zero Retries Interesting. I'm in awe of the energy and scientific curiosity that is being generated by HamSCI.

My thanks to Ed Efchak WX2R, Public Information Officer of HamSCI for notifying Zero Retries about this operating event.

# # #

M17 Foundation Request for Additional Donations

Wojciech Kaczmarski SP5WWP on the M17 Foundation website

M17 Foundation's statement

04-04-2025 by Wojciech Kaczmarski

To continue development of M17, we have followed recommendations to make the M17 Project self-sufficient. To do so, we have created the M17 Foundation, created the M17 Conference, and are pursuing some revenue generating projects.

Based on our understanding that there was a few thousand dollars left from our previous grant funds, we decided to initiate M17 trademark registration with personal funds, and request reimbursement.

> That request was declined by ARDC.
>
> Thus, we're requesting you, supporters of M17, to contribute to make up this shortfall from our expenditure of personal funds.

This… *is an unfortunate development, and I think the "request was denied" is shortsighted by ARDC*. I think that Wojciech SP5WWP and the new M17 Foundation has done all the right things to put the M17 Project (and M17's technology) on a path for M17 Foundation, and the technologies for M17, to continue, sustain and support, and evolve as a *viable alternative technology to proprietary and corporate-backed digital voice systems for Amateur Radio*.

I've contributed to M17 Foundation as requested. If you'd like to join me, see the **Donate** link in the upper right corner of the M17 Foundation page.

# # #

FCC Filing for 219 -220 MHz Band Rules Changes from ORI

Via email from Michelle Thompson W5NYV and Justin Overfelt AB3E:

> Thank you to the many people that have helped with this effort. Open Research Institute (ORI) has filed the first of what might be several comments and proposed rules making efforts to the FCC about reforming amateur radio use of the 219 MHz band.
>
> https://www.fcc.gov/ecfs/search/search-filings/filing/10329271641887
>
> The list of folks that have contributed and supported this effort to renovate 219 MHz for actual amateur radio use is quite long. This filing and any that follow are the result of over a year of work. Thank you especially to Mike McGinty, ARRL advisors, and Justin Overfelt.
>
> If you would like to help?
>
> 1. Please use this comment to make your own similar request under this particular proceeding. This is a "what regulations do you want to delete?" type of call. As with many FCC calls for comment, it will be dominated by commercial interests. Anything from amateur radio will stand out. The deadline for comments is 11 April 2025. Speak simply and directly. We'd like to use this band without unnecessary and burdensome requirements.
>
> 2. Please be ready to file a "reply" comment after the 11 April 2025 deadline. This is a chance for you to say "I agree with this and support this."
>
> We are not asking to change the fundamental nature of the band. Fixed digital messaging forwarding is super exciting these days because of SDRs, mesh networking, and all sorts of amazing protocol work available to us. We decided to simply ask for removal of the notification and permissions requirements. These requirements have resulted in zero use of this band for over two decades.
>
> The primary service back in the late 1990s when these rules came out was maritime (AMTS). Those licenses were never fully deployed and have now been leased out by railroads. This means, to us, that the permissions requirements now make no sense at all for secondary licensees.
>
> ORI is tired of this and is working to make this situation better. This is a great band with huge, innovative, digital promise. We deserve to have a seat at this table and that means the chair has to actually exist and the door to the room the table is located within has to actually be something we can open.

I applaud ORI's initiative and the *hard* organizational work that went into digging into the nuances and obsolete

verbiage regarding 219-220 MHz in the FCC Part 97 rules. This is an ideal use of the FCC's Docket 25-133 request for comments.

I read ORI's filing and agree wholeheartedly with all of its observations, comments, and suggestions. The 219-220 MHz secondary allocation to US Amateur Radio could be a valuable resource if it was less encumbered by now obsolete requirements for notifications and permissions to protect systems which, as it turns out, were never built out.

As part of my comments to the FCC, I will endorse ORI's comments but also request that the FCC delete the bandwidth limit of 100 kHz:

https://www.ecfr.gov/current/title-47/part-97#p-97.307(f)(13):

> (13) A data emission using an unspecified digital code under the limitations listed in § 97.309(b) also may be transmitted. The authorized bandwidth is 100 kHz.

A primary limitation for Amateur Radio use of the 219-220 MHz band is that all radios used there *must be Point to Point links*, thus using "beam" (tightly focused) antennas. Thus it's entirely feasible to use (and reuse) the entire 1 MHz of spectrum there for high speed data links. Just one example is that New Packet Radio can do 1 Mbps in 1 MHz. With the ability to use 219-220 as a dedicated point to point network link, it seems feasible for someone to adapt New Packet Radio to the 219-220 MHz band.

Kudos to ORI for this hard, good work.

# # #

A Simple, Low-Cost Cross-Band, Digital ATV Repeater

Jim Andrews KH6HTV in the Amateur Television Journal newsletter:

> Does your local ATV group need a TV repeater? repeater, or instead perhaps a cross-band repeater? (Keep It Simple Stupid)?
>
> …
>
> 70cm to 23cm Repeater: A cross-band repeater is much simpler to build and less expensive. The exotic, $$$ BPFs are not required. The block diagram on page 1 shows the basic elements. Such a repeater could even be patched together in a few minutes in an emergency. Simply taking the HDMI output from a 70cm DVB-T receiver and patching it directly into the HDMI input of a 23cm transmitter. Attach appropriate antennas and bingo, you are on the air with a cross-band repeater. Cost? The repeater shown would cost $1,300 (not including taxes & shipping)

KH6HTV offers a great tutorial that seems simple (enough) to follow in constructing a reasonable (for a group) cost Digital Amateur Television repeater. He makes a compelling argument for the simplicity (relative to an 70cm to 70cm repeater), utility, and cost-effectiveness of 70cm to 23cm digital video repeater.

I really love independent, technical, publicly accessible publications like ATV Journal. I think that publications like it really epitomize technical education and public utility of Amateur Radio media in the 21st century.

Kudos to KH6HTV for this excellent article!

# # #

New SDR Radios From China. Take a breath -- you are in for an information overload

Pete Juliano N6QW on his blog:

> This is what is coming from offshore.
>
> …
>
> It is inevitable that SDR will overtake the pure analog radios of the past. This is the fork in the road where in time you will have to decide to stay with the old horse and buggy or get an electric car.

Products mentioned include:

- WEB-888 SDR
- Radioberry
- Hermes Lite 2.0

and SDR software mentioned:

- QUISK
- SDR Console
- openhpsdr
- Thetis

N6QW isn't shy about sharing his opinions (see the name of his blog). N6QW has an excellent grasp of Zero Retries Interesting topics, but he's not just a passive observer of such subjects - he's a deeply talented and experienced experimenter. He has a new project - MHST (Minimalist Homebrew SDR Transceiver). N6QW's QRZ page is a fascinating read.

I'm absolutely in awe of folks like N6QW who have bridged the incredibly disparate worlds of tube circuitry understanding intimately the nuances of Software Defined Radio code over his 65-year Amateur Radio career. Kudos N6QW!

# # #

Building A Complete VHF TO Microwave Multi-Mode Ham Radio Transceiver Using Langstone V3 - Part 1

> Welcome to Part 1 of my Langstone V3 VHF to Microwave Multi-Mode Ham Radio Transceiver.
> All based on a Pi5 and a PlutoSDR. It's awesome!

Another impressive and informative Tech Minds tutorial / project from Matthew Miller M0DQW.

# # #

Appalachian Trail Golden Packet Event is 2025-07-19

Update from the ATGP group from the website:

> 2025/03/27 The sign-up sheet is live! Please visit the event page for a link to the sign-up sheet as well as a near real-time version showing who's already signed up!
>
> - Appalachian Trail Golden Packet 2025
>
> Exciting news - we have a couple of new sites this year!
>
> - Big Flats Mountain - Shippensburg, PA (FLATS-6)
> - Weiser State Forest - Pine Grove, PA (WEISER-7)
>
> And, with the renaming of Clingmans Dome to Kuwohi, we've updated the tactical callsign and site name:
>
> - Kuwohi - Smokey Mountains National Park, TN (KUWOHI-1)

Background:

> Every year for the past 15 years, licensed amateur radio operators coordinate 15+ sites along the length of the Appalachian Trail from Maine to Georgia. We use transceivers to exchange packet data between each site with the goal of sending the "golden packet" the entire length of the trail!

The last time I polled the ATGP site, the only information posted was the date. Now there’s enough info to consider participating if you’re in that region.

Like the HamSCI Meteor Scatter QSO Party, the Appalachian Trail Golden Packet event is an operating event that is primarily science / technical in nature, thus Zero Retries Interesting.

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Zero Retries Boilerplate

The **Zero Retries Store** is now open for business with quality Zero Retries branded merchandise and items being retired from Steve's N8GNJ Labs.

These bits were handcrafted (by a mere human, not an Artificial Intelligence bot) in beautiful Bellingham (The City of Subdued Excitement), Washington, USA, and linked to the Internet via **Starlink *Satellite* Internet Access**.

See the **Zero Retries Boilerplate** page for significant acknowledgements and other information relevant to Zero Retries. For new readers of Zero Retries, that page, and the **About Zero Retries** page has useful information to check out.

My ongoing ***Thanks*** to:|
Tina Stroh KD7WSF for, well, *everything!*
Jack Stroh, Late Night Assistant Editor Emeritus
Shreky Stroh, Late Night Assistant Editor In training

***Annual Founding Members* who generously support Zero Retries financially:**
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Founding Member 0001 - Randy Smith WU2S (Renewed 2024)
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Founding Member 0003 - Don Rotolo N2IRZ (Renewed 2024)
Founding Member 0004 - William Arcand W1WRA (Renewed 2024)
Founding Member 0006 - Todd Willey KQ4FID (Renewed 2024)
Founding Member 0007 - Merik Karman VK1DF / VK2MKZ (Renewed 2024 *with two Founding Member subscriptions!*)
Founding Member 0008 - Prefers to Remain Anonymous 14 (Renewed 2024)
Founding Member 0009 - Prefers to Remain Anonymous 19 (Renewed 2025)
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Founding Member 0014 - Joe Hamelin W7COM (New 2025)

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